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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,199	02/15/2002	Shinichi Kaneko	215125US3DIV	7935

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ALEXANDRIA, VA 22314

EXAMINER

YAO, SAMCHUAN CUA

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 12/01/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/075,199

Applicant(s)

KANEKO, SHINICHI

Examiner

Sam Chuan C. Yao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☒ Certified copies of the priority documents have been received in Application No. 09/512,825
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (US 3,891,738) in view of Ronden et al (US 5,981,631); **and, vice versa.**

Shen teaches a process of making a three-layer pressed board, the process comprises blending a phenol-formaldehyde binder and wood particles, wherein the wood particles includes fine splinters for face layers and coarse splinters for a core layer; forming a mat from the blend; and heat-pressing the mat to form the three-layer pressed board (abstract; col. 1 lines 3-18; example 1). Shen does not teach incorporating thermoplastic particles to the wood particles. However, it would have been obvious in the art to incorporate thermoplastic particles into the blend of phenol-formaldehyde binder and wood particles (herein forward, simply referred to as binder/wood blend), because Ronden et al teaches mixing thermoplastic particles to a co-mingled mixture of wood fibers and thermosetting binder such as a phenol-formaldehyde to enhance the properties of a resultant composite wood board (col. 1 lines 41-49; col. 2 lines 49-65; col. 6 lines 30-65; col. 10 lines 33-41; col. 14 lines 13-43; col. 15 lines 3-25; col. 15 lines 40-53). It would appear that, the incorporated thermoplastic particles in a binder/wood

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blend are melted during a mixing operation in a process taught by Ronden et al (col. 14 line 13 to col. 15 line 51). However, it would have been obvious in the art to melt thermoplastic particles in a mat during a heat-pressing operation instead of during a mixing operation, because it is a common practice in the art to heat-press a fiber mat comprising thermoplastic particles and reinforcing fibers to melt the thermoplastic particles thereby forming a composite board upon cooling.

Absent any showing of unexpected benefit, a preference on whether to heat-activate thermoplastic particles during a blending operation or during a thermo-pressing operation is taken to be well within the purview of choice in the art.

None, but only the expected result, of melting the thermoplastic particles so that the melted particles permeate and encapsulate the wood particles, would have been achieved. Also see figure 2 of the Ronden et al patent where it clearly shows that, the melted thermoplastic particles fill the voids between adjacent wood particles.

**Alternatively,** it would have been obvious in the art to form a three-layer pressed board in the process taught by Ronden et al, where the wood particle size in face layers is smaller than the wood particle size in a core layer as such is notoriously well known in the art as taught, for example, by Sean (example 1). As for the thermoplastic particle melting step recited in this claim, such would have been obvious in the art for the same reason set forth above.

With respect to claim 6, one in the art would have readily recognized and appreciated that, since the wood particles in face layer are smaller than the wood

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particles in a core layer, the voids between adjacent wood particles in the face layers would naturally be smaller than voids between adjacent wood particles in the core layer. See for instance the discussion of Applicant's admitted prior art on page 1 full paragraph 1 of the specification. Moreover, in order to uniformly and effectively incorporate thermoplastic particles into the wood particles, the size of the thermoplastic particles must be smaller than the voids spaces between adjacent wood particles. Otherwise, if the size of thermoplastic particles is greater than the voids between wood particles, then the thermoplastic particles would not be able to fit into the voids spaces. Therefore, an expeditious way to incorporate thermoplastic particles into void spaces in the face layers and the core layer would be to use smaller thermoplastic particles for the face layers and larger particles for the core layer. For this reason, the limitation in this claim would have been obvious in the art.

With respect to claim 7, see column 6 lines 54-60.

With respect to claim 8, since Ronden et al is not restrictive to using a particular thermoplastic material as long as the thermoplastic material is capable of melting at a temperature that is less than a char temperature of wood particles (col. 3 lines 64-66); and since it is a common practice in the art to recycle thermoplastic waste products by comminuting the waste products into particles, the limitation in this claim would have been obvious in the art.

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***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703) 308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff H Aftergut can be reached on (703) 308-2069. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7115.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2058.

  
Sam Chuan C. Yao  
Primary Examiner  
Art Unit 1733

Scy  
11-25-03